



Stiftung Alfred-Wegener-Institut  
für Polar- und Meeresforschung  
in der Helmholtz-Gemeinschaft

# A Discovery Service for Knowledge Related to Research Platforms

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AWI Computer Center

## Goal

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Facilitate mining of geo-referenced data collected by research platforms

Bridge the gap between people, publications, data and research platforms.

Provide a new, additional viewing angle or vantage point





## Motivation

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- Create an infrastructure for persistent archival and user-friendly sharing of knowledge related to research platforms
- Facilitate assessment of scientific output associated with any given research platform; ( relevant for funding agencies )
- Minimize data redundancy
- To foster cross-institutional and interdisciplinary cooperation
- Platform may be a valuable selection / aggregation criteria in many cases



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## Research platforms

**Vessels:** Polarstern, Heincke

**Land-based stations:**

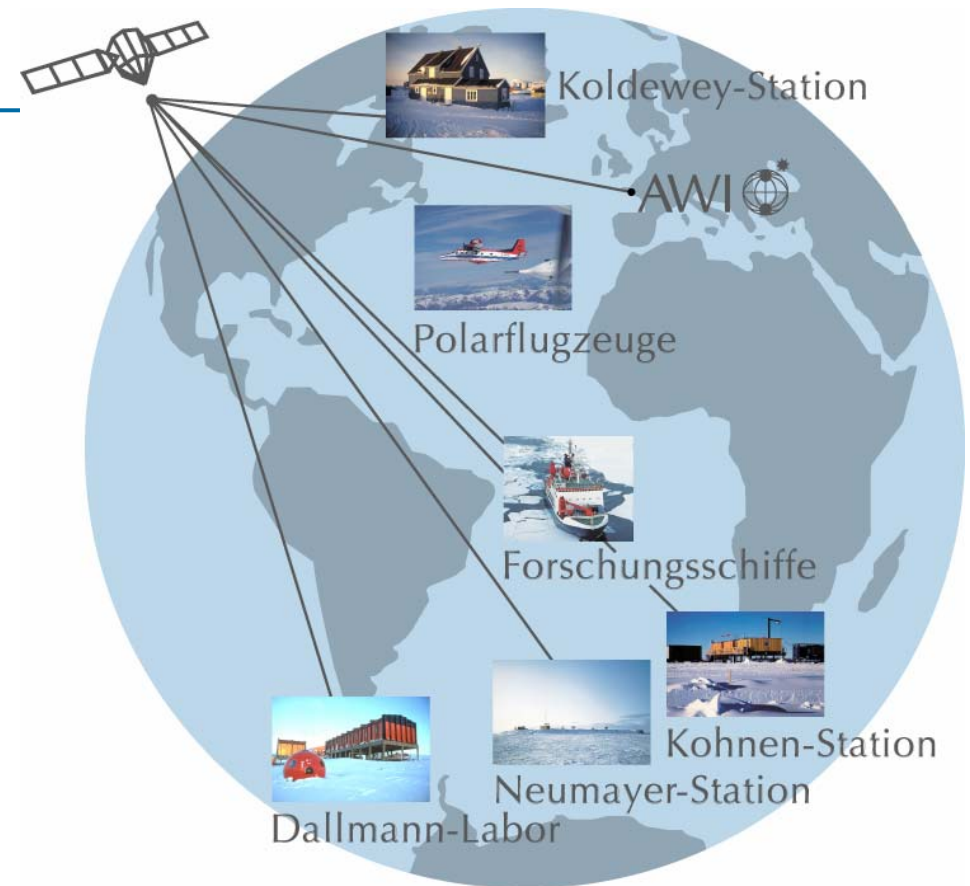
Neumayer, Kohnen, Dallmann,  
Filchner, Koldewey

**Ocean-based stations:**

Buoys, floats, moorings,  
„Hausgarten“

**Airplanes:** Polar 2, Polar 4

**Satellites:** CryoSat



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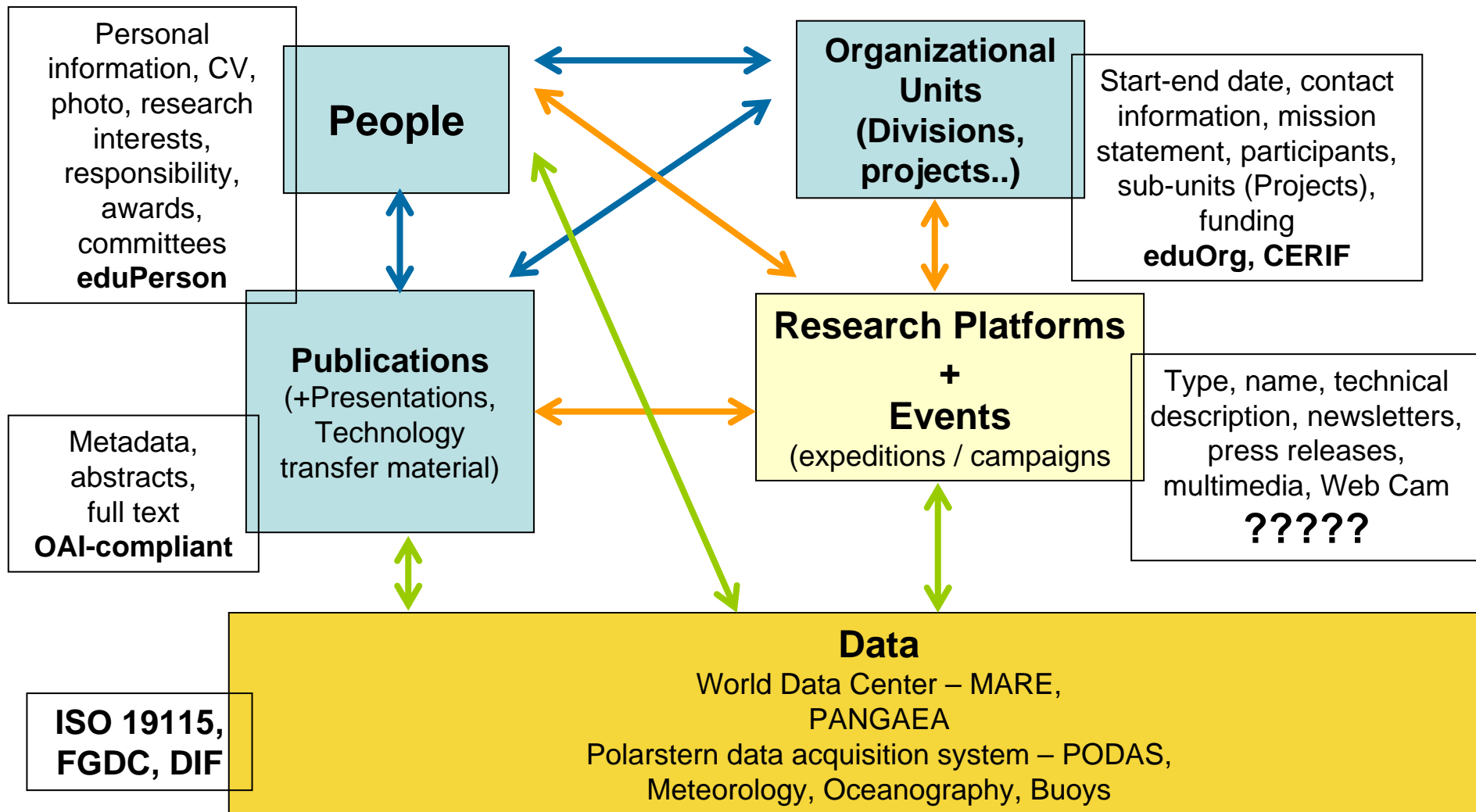
- General information on research platforms and associated long-term programs is heavily heterogeneous and hard to mine; information is static and often outdated with limited access to planned expeditions and programs.
- Systematic access to publications, respective data and technology transfer findings associated with research platforms is not available.  
“Free-form” written lists are often outdated and offer no browsing and retrieval possibilities.



- Metadata information is not available or does not comply with international standards in many cases (e.g., ISO 19115, FGDC, DIF).
- Much of available metadata/data are not archived in a centralized fashion – sometimes for a good reason ! (F.e. dynamically growing, specialized databases)







Publications are cross-referenced with data  
(Guidelines based on DFG "Regeln guter wissenschaftlichen Praxis")

Example:

**Mackensen, A.**(2001). Oxygen and carbon stable isotope tracers of Weddell Sea water masses: new data and some paleoceanographic implications, Deep-sea research i, 48/6, 1401-1422.

| [Abstract](#) | [HTML](#) | [PDF](#) | [PS](#) | [PPT](#) | [DATA](#) |





[Alfred Wegener Institut for Polar and Marine Research](#)

**Oxygen and carbon stable isotope tracers of Weddell Sea water masses:  
new data and some paleoceanographic implications**

Deep-sea research i, 48/6, 1401-1422, [2001]

Publication: [\[PDF\]](#)[\[Data\]](#)

Department: [Geo System](#)  
[Paleoenvironment from Marine Sediments](#)

Contact author: [Prof. Dr. Andreas Mackensen](#)

Author(s): Mackensen, A.

**Abstract:**

Stable oxygen isotopic composition of sea water and stable carbon isotopes of Dissolved Inorganic Carbon (DIC) on the continental shelf in the southern Weddell Sea are presented. Using the stations sampled during the summer 1995 two sections can be constructed, one closely parallel to the ice shelf edge and the other one perpendicular to the upper continental slope. Generally,  $\delta^{18}\text{O}$  values clearly separate between different shelf water masses depending on the content of meteoric meltwater added during melting of glacial ice. Extrapolation of the mixing line between the cores of High Salinity Shelf Water (HSSW) and supercooled Ice Shelf Water (ISW) reveals  $\delta^{18}\text{O}$  values of the glacial ice of  $-27\text{‰}$ , whereas extrapolation of the mixing line between the  $\delta^{18}\text{O}$  values of the most saline HSSW and lowest temperature ISW results in  $\delta^{18}\text{O}$  values of  $-34\text{‰}$  for glacial ice. These values point to an origin of meltwater from below the ice shelf where ice is less depleted in  $^{18}\text{O}$ , since deeply beneath the ice shelf close



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[See also](#)

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Fax: +49(471)4831-1149  
Publications: [All](#) | [Invited talks](#) | [Talks](#) | [Poster](#)



#### Responsibilities

- ◆ Head of stable isotope laboratory
- ◆ Editor-in-Chief "Marine Micropaleontology"

#### Research Interests

- ◆ Micropaleontology
- ◆ Benthic foraminiferal paleoecology
- ◆ Paleoceanography
- ◆ Stable isotope geochemistry

#### Awards

- ◆ Adjunct Professor (2003)  
Fachbereich Geowissenschaften, Universität Bremen
- ◆ NATO-Fellow (1985)  
Dept. of Geological Sciences, University of Southern California, Los Angeles, USA
- ◆ DEMINEX/NTNF-Fellow (1983)  
Geological Institute Dep. B, University of Bergen, Norway



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PANGAEA

Always quote reference when using data!

Data Software Info Links

PangaVista | ART | Projects | Institutes | PanCore

Search for:

ARK-XIV/1a

[Show map](#)

Search

[Help](#)



Clear

32 data sets found.

<< PREV | 1 | 2 | 3 | 4 | NEXT >>

1. **### PS51/021-3 - PS51/058-6** (*Meiofauna*)

Data points: 270

[Data description](#) - [Download dataset as tab-delimited text](#) - [View dataset as HTML](#) (*login required*)

2. **### PS51/029-1 - PS51/058-1** (*sedimentology\_isotopes*)

Data points: 1498

[Data description](#) - [Download dataset as tab-delimited text](#) - [View dataset as HTML](#)

3. **### PS51/030-1** (*PS51-030-1\_phys\_props*)

Reference: **Stein, R; Usbeck, R & Polozek, K (1999):** Continous whole-core logging of wet bulk density, P-wave velocity and magnetic s..., In: Jokat, W (ed.), ARCTIC 98: The Expedition ARK-XIV/1a of RV Polarstern in 199...

Data points: 1631

[Data description](#) - [Download dataset as tab-delimited text](#) - [View dataset as HTML](#)

4. **### PS51/032-1 - PS51/033-1** (*PS51-032\_033\_phys\_props*)

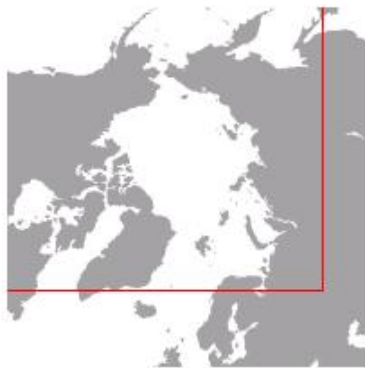


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## AWI Buoy Arctic and Antarctic Archive

Index Map

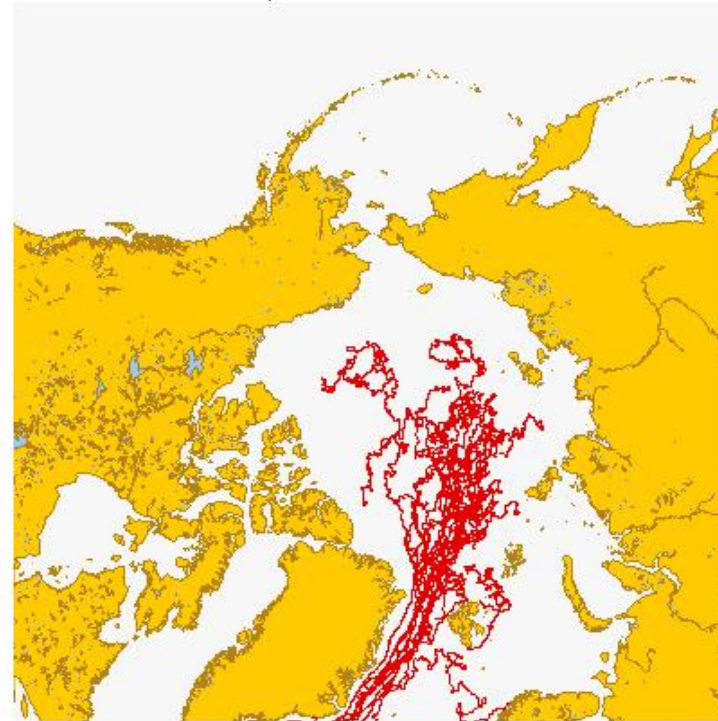


Key

-  - Buoy 1999-3311
-  - Buoy 2001-8063
-  - Buoy 2000-9360
-  - Buoy 2000-8066
-  - Buoy 1999-8065
-  - Buoy 1996-9365
-  - Buoy 1996-9354
-  - Buoy 1996-8057
-  - Buoy 1995-9364
-  - Buoy 1995-9363

Select map click action:

- ☒ click here to browse map
- ☐ click here and on buoy track to download data



Set Region

Arctic

Set Region

Select Cruises

All Cruises

ARK-IX/4  
ARK-VIII/2  
ARK-VIII/3  
ARK-XI/1  
ARK-XII

Select Year

1986

Zoom Factor

0



**In situ land based "Neumayer"**

In situ land based

Weather: [Current](#) | [Today](#) | [Yesterday](#) | 2003

Operation: [Alfred-Wegener-Institut](#) [Germany]

Status: Full-year station since February 1981

Location: 70°39' S, 8°15' W, 40 m above sea level  
[Ekström Shelf Ice, Atka Bay, northeast Weddell Sea, Antarctic]

Instrumentation: [All](#)



[\[See also\]](#) [\[COMNAP\]](#)

**Data**

Observatories: [Meteorology](#)  
[Air chemistry](#)  
[Geophysics](#)

Publications: [All](#) | [Field reports](#) | [PhD thesis](#)

Presentations: [Talks](#) | [Invited talks](#) | [Posters](#)

**Additional Information**

[WebCam](#) [Image Gallery: 1](#) | [2](#)

[Newsletters](#) [Special events](#)

[Special projects](#) [International cooperation](#)



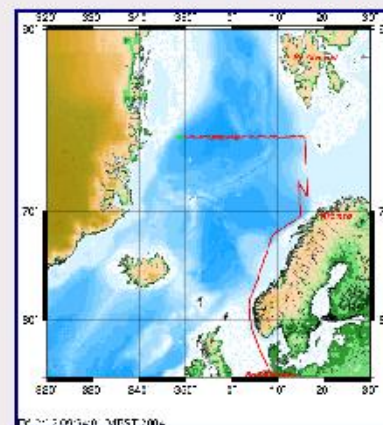
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R.V. "**Polarstern**"- Expedition year: **2004**

Research vessels **Polarstern**

Operation: [Alfred-Wegener-Institut](#)  
[Germany]  
Ice class: GL/ARC 3, built 1982  
Length/Beam: 117.91 m/25.07 m  
Purpose: Marine Science, logistic,  
re-supply  
General info: [Current expedition](#) | [Current  
weather](#) | [Long-term schedule](#)  
| [On-line library](#)  
Cruise  
participation: [Proposal guidelines](#) |  
[Cruise-related forms](#)  
Instrumentation: [All](#) | [Physical oceanography](#)  
Data: [Meteorology](#) | [Oceanography](#)  
| [PANGAEA](#) | [PODAS](#)  
"Polarstern  
Abstracts": [All](#) | [Submit new abstract](#)  
Additional  
Publications: [Field reports](#) | [PhD Thesis](#)  
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Where is "Polarstern"?



[See also] [Print schedule]

Expedition	Date    Port	Region    Research	Weekly reports	Data    AWI Publications	Details
<b>ANT-XXI/3</b>	21.01.2004 - 25.03.2004	Atlantic/Indian Ocean, Polar frontal zone Biology, EIFEX <a href="#">[Press release]</a>	1. Report 2. Report 3. Report 4. Report 5. Report	<a href="#">Meteorology</a> <a href="#">PANGAEA: Stations</a> <a href="#">PANGAEA: Datasets</a> <i>[Note: Datasets for recent cruises]</i>	<a href="#">▶</a>
Coordinator: Pörtner, H. Chief scientist:	Capetown - Capetown				



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## Summary

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1. A new object “Research Platforms” has been defined in order to integrate information on research platforms, events, publications, organizational units and people.
2. The service-oriented system presented here can be easily extended to research platforms operated by other countries.
3. We propose to create a standardized, minimum set of metadata attributes to describe and identify research platforms and seek cooperation in defining these.
4. We propose to link diverse, distributed and heterogeneous databases and archives in a federated fashion, following design principles and using the protocols of Open Archives (OAI-PMH)



## Future work

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1. Extend metadata/data visualization to all datasets using OpenGIS MapServer
2. Build a web of service-oriented information systems, archives and portals which is independent of computer systems, data management styles, proprietary software, etc
3. Use as base technologies:
  - SOAP/W3C Web Services,
  - Grid/eScience-Standards for collaboration
  - Open Archives Initiative – Protocol for Metadata Harvesting, (OAI-PMH)

